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C4007(C)
Y2-0187-UNI

RESPONSE UNDER 37 CFR 1.116
EXPEDITED PROCEDURE
EXAMINING **GROUP #** 1751

PATENT

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Customer Number:	000201
Attorney Docket No.:	**C4007(C)**
Applicant:	Hage et al.
Serial No.:	09/650,134
Filed:	August 29, 2000
FOR:	COMPOSITION AND METHOD FOR BLEACHING A SUBSTRATE
UNUS No.:	Y2-0187-UNI

Group: 1751
Examiner: Gregory R. Delcotto

Edgewater, New Jersey 07020
January 11, 2002

RESPONSE AFTER FINAL ACTION UNDER C.F.R. § 1.116

Commissioner For Patents
Washington, D.C. 20231

Sir:

The following comments are in response to the Office Action dated December 4, 2001. These comments are intended to advance the case to issue without delay.

Claims 1-16 and 18-24 were rejected under 35 U.S.C. § 103(a) as unpatentable over EP 909 809. Applicants traverse this rejection.

All of the independent claims require a liquid bleaching composition comprising an organic substance which forms a complex with a transition metal. This complex catalyzes bleaching by atmospheric oxygen without use of aldehydes. Bleaching is to at least 50% effected by oxygen sourced from the air and the composition is substantially devoid of peroxygen bleach or a peroxy-based or -generating bleach system.

No distinction is seen by the Examiner between "molecular oxygen" described in EP '809 and "atmospheric oxygen" as employed by the present claims. Applicants seek reconsideration based upon comments which follow.

EP '809 reports on the use of iron complex catalysts in bleaching systems. This catalyst operates by activating hydrogen peroxide or peroxy acids. See [0011] and the Abstract. Hydrogen peroxide or peroxy acids may be generated from a "peroxy bleaching compound". See [0031]. A long list of sophisticated organic and inorganic peroxy bleaching compound candidates are listed between paragraphs [0032] and [0046]. As an alternative, the reference at [0047] mentions that "molecular oxygen" may be used as the oxidant.

Nowhere else in the reference is any explanation given for the phrase "molecular oxygen".

Anyone skilled in the art considering this reference as a basis for the present invention would have several serious questions. A first question is why the reference uses the phrase "molecular oxygen" instead of the much more common "oxygen", "air" or "atmospheric oxygen". Why does "molecular" adjective "oxygen"? Thus, it is applicants' position that for the present invention, the reference phrase of "molecular oxygen" is non-enabling.

A further reason exists for not equating "molecular oxygen" with "atmospheric oxygen". Were the reference to have meant atmospheric oxygen it would simply have stated that the catalyst would need no peroxide generating system at all. Oxygen or air would always be present in the environment of laundry, dishwashing or hard surface cleaning. See [0015]. Positive recitation of "<u>molecular</u> oxygen" would have to mean something other than atmospheric oxygen or air.

Still there is a further consideration. The reference paragraph [0047] states that molecular oxygen may be used as the oxidant "as an alternative to the above described peroxide generating systems". This means that the "molecular oxygen" species must be something which is peroxide generating, *and the resulting generated peroxide is the species which the iron complex activates.* Simple atmospheric oxygen is not a peroxide generating system. Now it may be that atmospheric oxygen could be reacted with some substance to form a peroxide, but cannot itself be a peroxide source. For instance, a molecular oxygen activating system is defined in WO 97/38074. Therein atmospheric oxygen which the inventors call "molecular oxygen" is activated to peroxides by interaction with aromatic aldehydes.

Indeed if EP '809 had contemplated that mere atmospheric oxygen would be enough as a co-reactive with the iron complexes, the inventors of that invention would not have relied so heavily upon the complicated peroxy compounds as co-actives. In fact, the inventors in EP '809 would have demonstrated their iron complex (even in a hypothetical example) utilizing air alone. Yet this is not what is found in that reference. EP '809 did not recognize atmospheric oxygen as a co-reactive and any mention of "molecular oxygen" no doubt to those applicants and anyone skilled in the art must have meant much more than merely air.

Another aspect of the claims is that at least 50% of bleaching must be effected by oxygen source from the air. Even if the reference phrase "molecular oxygen" were assumed merely to be atmospheric oxygen, there is no suggestion that it would be sufficiently effective to allow at least 50% of any bleaching of the substrate.

Claim 18 has the further feature of the textile being bleached by atmospheric oxygen after removal from the wash liquor and being dried. This is a post-laundry phenomena. Applicants have demonstrated this discovery in Tables 7-10. In almost all of the exemplified complexes, the bleaching effect after 1 day storage on dried cloth (t = 1) was significantly improved over cloth measured immediately after drying (t = 0). These results were quite unexpected.

The Examiner asserts that the composition as taught by EP '809 would have had the same bleaching properties as recited by instant claim 18 since the components are identical. Applicants request the Examiner to reconsider his position.

The iron complexes of EP '809 are taught to be reacted with hydrogen peroxide or peroxy acid systems. These will generally allow the substrate to be bleached but the catalyst itself will be spent because of the highly active peroxide system environment. It is believed that only with a milder type of co-oxidant such as atmospheric oxygen would the catalyst carry-over after drying into a species with sufficient activity to continue a bleaching process outside a wash liquor environment. Those skilled in the art would not have been taught by EP '809 to select atmospheric oxygen alone as a peroxide source. Consequently the reference does not inherently contain the same components as that recited by the instant claims.

Claims 1, 4-13, 18-20 and 22-24 were rejected under 35 U.S.C. § 103(a) as being unpatentable over WO 95/34628, WO 97/48787 or WO 97/38074. Applicants traverse this rejection.

The specifications of WO 95/34628 and WO 97/48787 contain the same disclosure as EP '809. All arguments presented for unobviousness in the rejection against EP '809 would equally apply to the PCT references.

With respect to WO '074, the Examiner has noted that aldehydes are **preferred** components but not required in the composition. Thus, the Examiner suggests that the reference teaches in a non-preferred system merely atmospheric oxygen.

The term "preferred" appears at page 4, lines 1-5. "Preferred" relates not to aldehydes generally but to specific species of aldehyde, those whose formula appears at page 4, lines 5-35.

WO '074 does not suggest that mere "molecular oxygen" accomplishes bleaching but rather that a *"molecular oxygen activating system"* achieves the cleaning result. There must be something in addition to molecular oxygen gas. The reference discloses no other co-reactant with "molecular oxygen" than aldehydes. Certainly the Examiner does not believe that air by itself without any other catalyst or activating form would clean laundry. It won't. WO '074 teaches that there must be some sort of activating system for the molecular oxygen to achieve a cleaning result. The only enabling disclosure as to activation is that of aldehydes. Those skilled in the art thus would be taught the possibility of utilizing air sourced oxygen in combination with certain aldehydes to achieve a "molecular oxygen activating system". It is this *system* which is referenced in WO '787, WO '628 and EP '809. All of these are Unilever publications wherein "molecular oxygen" was contemplated for atmospheric oxygen only within the context of an aldehyde or other activating system but not by itself as a naked gas. Those skilled in the art would not have arrived at the presently claimed invention by consideration of the references cited against the claims.

In view of the foregoing comments, applicants request the Examiner to reconsider the rejection and now allow the claims.

Respectfully submitted,

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